EXCHANGE OF NOTES BETWEEN THE GOVERNMENT OF CANADA AND THE GOVERNMENT OF THE UNITED STATES OF AMERICA AMENDING THE AGREEMENT CONCERNING ALLOCATION OF TELEVISION CHANNELS DATED JUNE 23, 1952

WASHINGTON, FEBRUARY 26 & APRIL 7, 1982
IN FORCE APRIL 7, 1982

CANADIAN EMBASSY
WASHINGTON

February 26, 1982

No. 77

Sir,

I have the honour to refer to the Exchange of Notes dated April 23 and June 23, 1952 between Canada and the United States of America constituting an Agreement regarding allocation of television channels and to discussions between representatives of interested agencies of our two Governments concerning the allocation of radio spectrum in the UHF band. They have proposed the following amendments to the above mentioned Agreement:

The band 806 to 890 MHz, which includes television channels 70 to 83, shall no longer be used for television broadcasting but shall be allocated to the mobile radio services. The use of the band 806 to 890 MHz shall be governed by the Arrangement between the Department of Communications and the Federal Communications Commission appearing as Annex I of this Note. At an appropriate time in the future, this Arrangement shall be annexed to the *Agreement Concerning the Coordination and Use of Radio Frequencies Above 30 Megacycles per Second*, as amended June 24, 1965.

The allotment of television channels within an area of 250 miles (402 km) on either side of the border between Canada and the United States shall be in accordance with Tables A and B appearing in Annex II of this Note. These Tables may be amended from time to time by an exchange of documents directly between the Federal Communications Commission and the Department of Communications, as provided in paragraph H of the Canadian/USA Television Agreement of 1952.

Recognizing that five Canadian television stations currently provide service in Southern Ontario and British Columbia in the band 806 to 890 MHz and that these stations utilize, in accordance with the 1952 Canadian/USA Television Agreement of 1952, channel 78 (854-860 MHz) in Windsor, channel 76 (842-848 MHz) in Kitchener, channel 79 (860-866 MHz) in Toronto, channel 72 (818-824 MHz) in Enderby and channel 77 (848-854 MHz) in Radium/Hot Springs, the United States agrees to protect reception of these stations in Canada from interference from other radio services operating in the band 806-890 MHz. Canada agrees to reassign as expeditiously as possible the three television stations located in Ontario. The two stations in British Columbia will be reassigned when their continued operation would impair the provision of mobile radio services along the border.

Prior to reassignment, each of the broadcast stations is to be protected as follows: the field strength of an interfering mobile radio signal at the station's calculated B contour (where the protected contour crosses the border, that portion of the border lying within the contour shall be treated as the relevant segment of the B contour) is not to exceed 14 dBu for frequencies co-channel with the television channel utilized and is not to exceed 54 dBu in the two adjacent 6 MHz guard bands. The field strength of any interfering signals is to be calculated using the R6602 F(50,10) propagation curves at a receiving effective antenna height of 9.1 metres.

The Interim Arrangement for the coordination of U.S. land mobile radio stations operating in the 806-890 MHz frequency band in the vicinity of the border between Canada and the United States of America dated January 13, 1977 is hereby terminated.

Representatives of the United States and Canada will, at the request of the Canadian administration, negotiate amendments to the annexed arrangement in order to permit the introduction of mobile satellite operations in the band 806 to 890 MHz.

If the proposals outlined above are acceptable to the Government of the United States, I have the honour to propose that this Note, which is authentic in English and French, and your reply to the effect shall constitute an agreement between our two Governments which shall enter into force on the date of our reply.

Accept, Sir, the renewed assurances of my highest consideration.

Ambassador

ARRANGEMENT BETWEEN THE DEPARTMENT OF COMMUNICATIONS OF CANADA AND THE FEDERAL COMMUNICATIONS COMMISSION OF THE UNITED STATES CONCERNING THE USE OF THE BAND 806 TO 890 MHZ ALONG THE CANADA-UNITED STATES BORDER

1. *Scope*

This arrangement between the Department of Communications of Canada (DOC) and the Federal Communications Commission of the United States (FCC), herein referred to as the Agencies, covers the establishment and operation of land mobile radio services operating in the band 806 to 890 MHz along the Canada-United States border.

Aeronautical and maritime mobile services in this band are not covered by this arrangement but will be the subject of future discussion at the request of either Agency prior to their introduction in accordance with the principle outlined in paragraph 2.

2. *General Sharing Principle*

The frequency band covered by this arrangement and each of the sub-bands are to be shared on an equal basis along the border, except as otherwise specified.

3. *Sharing Arrangements in the 806-821 MHz and 851-866 MHz Bands*

3.1 The United States has the unrestricted geographic use of the frequency bands 806.0000 to 809.7500 MHz, 817.2500 to 821.0000 MHz, 851.0000 to 854.7500 MHz and 862.2500 to 866.0000 MHz in the Sharing Zones within the United States except as specified in paragraph 4.

Canada has the unrestricted geographic use of the frequency bands 809.7500 to 817.2500 MHz and 854.7500 to 862.2500 MHz in the Sharing Zones within Canada except as specified in paragraph 4.

3.2 There are three Sharing Zones:

a) Sharing Zone I:

This Sharing Zone is the area adjacent to the United States-Canada border east of longitude 121° 30'W. and extending a distance of 100 km within either country. Within this zone, the Agencies may use their allotted portions of spectrum subject to the Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limits of Annex A, Table A1.

b) Sharing Zone II:

This Sharing Zone is the area adjacent to the United States-Canada border between 121° 30' and 127°W. longitude and extending a distance of 140 km within either country. Within this zone, the Agencies may use their allotted portions of

spectrum subject to the Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limits of Annex A, Table A2.

c) Sharing Zone III:

This Sharing Zone is the area adjacent to the Alaska-British Columbia/Yukon Territory border and extending a distance of 100 km within either country. Within this zone, the Agencies may use their allotted portions of spectrum subject to the Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limits of Annex A, Table A1.

3.3 *Protection Zone*:

The Protection Zones are the areas adjacent to Sharing Zones I and III and extending from 100 to 140 km away from the United States-Canada border within both countries. There is no protection Zone associated with Sharing Zone II.

3.4 Each Agency has full use of the 806-821 MHz and 851-866 MHz bands within the Protection Zone in their respective country subject to the condition that base stations not exceed the maximum Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limits given in Annex A, Table A1.

Note: see Figure 1

3.5 *Two Frequency Channelling Arrangements*

Everywhere within the Sharing and Protection Zones, the Agencies will use the spectrum on the basis of a two frequency channelling plan with mobile station transmitters in the 806-821 MHz band and base station transmitters in the 851-866 MHz band.

3.6 *Use of the 806-821 MHz and 851-866 MHz Bands Outside of the Sharing and Protection Zones*

Beyond 140 km from the border, the Agencies have unrestricted use of these bands.

4. *Special Sharing Arrangements*

In recognition of particular demographic circumstances, the Agencies agree on the unequal division of spectrum between Canada and the United States in the following two sectors:

4.1 *a)* Sector 1:

Sector 1 is defined to be the portion of Sharing Zone I in the United States and Canada, bounded on the west by 85°W. longitude and on the east by 81°W. longitude.

In this Sector, the United States has the unrestricted geographic use of the bands 806.0000 to 811.2500 MHz, 815.7500 to 821.0000 MHz, 851.0000 MHz to 856.2500 MHz and 860.7500 to 866.0000 MHz and Canada has the unrestricted geographic use of the bands 811.2500 to 815.7500 MHz and 856.2500 to 860.7500 MHz.

b) Sector 2:

Sector 2 is defined to be the portion of Sharing Zone I in the United States and Canada bounded on the west by 81°W. longitude and on the east by 71°W. longitude.

In this Sector, the United States has the unrestricted geographic use of the bands 806.0000 to 808.2500 MHz, 818.7500 to 821.0000 MHz, 851.0000 to 853.2500 MHz and 863.7500 to 866.0000 MHz and Canada has the unrestricted geographic use of the bands 808.2500 to 818.7500 MHz and 853.2500 to 863.7500 MHz.

Note: see figure 2

4.2 *Coordination Necessitated by the Special Sharing Arrangements*

Where, as a result of these special sharing arrangements, portions of the allotted bands of both countries overlap, proposed frequency assignments in the overlapping portions will be coordinated between the two Agencies in accordance with the procedures specified in Arrangement A annexed to the *Agreement Concerning the Coordination and Use of Radio Frequencies Above Thirty Megacycles per Second*, as amended 24 June 1965.

4.2.1 Coordination is required for assignments in the 808.2500 to 811.2500 MHz, 815.7500 to 818.7500 MHz, 853.2500 to 856.2500 MHz and 860.7500 to 863.7500 MHz bands in the following overlap areas:

a) The geographical area in Canada enclosed by the meridian of 81°W. longitude, the arc of a circle of 100 km radius centered at the intersection of 81°W. longitude and the southern shore of Lake Erie and drawn clockwise from the northerly intersection with 81°W. longitude to intersect the United States-Canada border, and the United States-Canada border, and

b) the geographical area in the United States enclosed by the meridian of 81°W. longitude, the arc of a circle of 100 km radius centered at the intersection of 81°W. longitude and the northern shore of Lake Erie and drawn clockwise from the southerly intersection with 81°W. longitude to intersect the United States-Canada border, and the United States-Canada border.

The Agencies will channel and use the overlapping bands for assignments with 16 kHz or less necessary bandwidth on center frequencies spaced 25 kHz apart. The FCC will assign frequencies from 808.2625 to 811.2375 MHz, 815.7625 to 818.7375 MHz, 853.2625 to 856.2375 MHz and 860.7625 to 863.7375 MHz inclusive. The DOC will assign frequencies from 808.2750 to 811.2250 MHz, 815.7750 to 818.7250 MHz, 853.2750 to 856.2250 MHz and 860.7750 to 863.7250 MHz inclusive.

4.2.2 Coordination is required for assignments in the 808.2500 to 809.7500 MHz, 817.2500 to 818.7500 MHz, 853.2500 to 854.7500 MHz and 862.2500 to 863.7500 MHz bands in the following area:

a) The geographical area in Canada enclosed by the United States-Canada border, the meridian 71°W.; and the line beginning at the intersection of 72°W. and the United States-Canada border, thence running north along meridian 72°W. to the intersection 72°W. to the intersection of 45°45'N., thence running east along 45°45'N. to the meridian 71°W., and

b) the geographical area in the United States enclosed by the United States border, the meridian 71°W.; and the line beginning at the intersection of 44°25'N., 71°W., thence running by great circle arc to the intersection of 45°N., 70°W., thence north along meridian 70°W. to the intersection of 45°45'N., thence running west along 45°45'N. to the intersection of the United States-Canada border.

The Agencies will channel and use the bands for assignments with 16 kHz or less necessary bandwidth on center frequencies spaced 25 kHz apart. The FCC will assign frequencies from 808.2625 to 809.7375 MHz, 817.2625 to 818.7375 MHz, 853.2625 to 854.7375 MHz and 862.2625 to 863.7375 MHz inclusive.

The DOC will assign frequencies from 808.2750 to 809.7250 MHz, 817.2750 to 818.2750 MHz, 853.2750 to 854.7250 MHz and 862.2750 to 863.7250 MHz inclusive.

Note: see Figure 3

5. *Use of the 821-851 MHz and 866-890 MHz Bands*

Considering the uncertainties, at the date of this arrangement, concerning the use and extent of mobile systems in the cellular and reserved portions of the bands 821 to 851 MHz and 866 to 890 MHz in the both countries and concerning the specific evolvement of mobile systems in these bands, as well as the probable timing and location of such evolution, Canada and the United States reserve specification of sharing methodology, including that for the possible introduction of a mobile satellite system, for future discussion which may be held at the request of either country.

In the case of evolvement of cellular systems in either country, the reliable service area of cells (defined for the purpose of this arrangement to be 35 dBuV/m at the cell perimeter) will not extend across the border. In any case where the interference contour of a cell (defined as 3 times the radius of the cell) would fall across the border, the responsible Agency will coordinate such cases with the other Agency prior to authorization.

The coordination procedure will be in accordance with the principle of equal access to the spectrum. The definition of reliable service area may be revised by mutual consent.

6. *Protection of Television Reception*

In order to provide protection to the reception in Canada of certain Canadian television stations from interference, the FCC agrees to withhold authorization of the operation of land mobile base stations in frequency bands and geographical areas listed in Annex B. The Agencies reserve the right to initiate further discussion on Annex B.

ANNEX A

LIMITS OF EFFECTIVE RADIATED POWER AND ANTENNA HEIGHT

Effective Radiated Power (ERP) is defined as the product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

For base stations in the Protection Zones and Sharing Zones I and III, Table A1 lists the limits of Effective Radiated Power (ERP) corresponding to the Effective Antenna Height (EAH) ranges shown. In this case, Effective Antenna Height is calculated by subtracting the Assumed Average Terrain Elevation given in Table A3 from the antenna height above mean sea level.

Table A1

Effective Antenna Height (EAH)		ERP
Metres	Feet	Watts (Maximum)
0 - 152	0 - 500	500
153 - 305	501 - 1000	125
306 - 457	1001 - 1500	40
458 - 609	1501 - 2000	20
610 - 762	2001 - 2500	10
763 - 914	2501 - 3000	10
915 - 1066	3001 - 3500	6
1067 - 1219	3501 - 4000	5
Above 1219	Above 4000	5

For base stations in the Sharing Zone II, Table A2 lists the limits of Effective Radiated Power (ERP) corresponding to the antenna height above mean sea level ranges shown.

Table A2

Antenna Height Above Mean Sea Level		ERP
Metres	Feet	Watts (Maximum)
0 - 503	0 - 1650	500
504 - 609	1651 - 2000	350
610 - 762	2001 - 2500	200
763 - 914	2501 - 3000	140
915 - 1066	3001 - 3500	100
1067 - 1219	3501 - 4000	75
1220 - 1371	4001 - 4500	70
1372 - 1523	4501 - 5000	65
Above 1523	Above 5000	5

Table A3 lists the values of Assumed Terrain Elevations (A.A.T.E) within the Sharing and Protection Zones of Both Sides of the United States-Canada Border.

E.A.H. = Antenna Height Above Mean Sea Level - A.A.T.E.

Table A3

Longitude (ϕ) (°West)	Latitude (Ω) (°North)	Assumed Average Terrain Elevation			
		United States		Canada	
		Feet	Metres	Feet	Metres
$65 \leq \phi < 69$	$\Omega < 45$	0	0	0	0
"	$45 \leq \Omega < 46$	300	91	300	91
"	$\Omega \geq 46$	1000	305	1000	305
$69 \leq \phi < 73$	all	2000	609	1000	305
$73 \leq \phi < 74$	"	500	152	500	152
$74 \leq \phi < 78$	"	250	76	250	76
$78 \leq \phi < 80$	$\Omega < 43$	250	76	250	76
"	$\Omega \geq 43$	500	152	500	152
$80 \leq \phi < 90$	all	600	183	600	183
$90 \leq \phi < 98$	"	1000	305	1000	305
$98 \leq \phi < 102$	"	1500	457	1500	457
$102 \leq \phi < 108$	"	2500	762	2500	762
$108 \leq \phi < 111$	"	3500	1066	3500	1066
$111 \leq \phi < 113$	"	4000	1219	3500	1066
$113 \leq \phi < 114$	"	5000	1524	4000	1219
$114 \leq \phi < 121.5$	"	3000	914	3000	914
$121.5 \leq \phi < 127$	"	0	0	0	0
	$54 \leq \Omega < 56$	0	0	0	0
	$56 \leq \Omega < 58$	500	152	1500	457
$\phi \geq 127$	$58 \leq \Omega < 60$	0	0	2000	609
(Alaska - British	$60 \leq \Omega < 62$	4000	1219	2500	762
Columbia / Yukon	$62 \leq \Omega < 64$	1600	488	1600	488
Territory Border)	$64 \leq \Omega < 66$	1000	305	2000	609
	$66 \leq \Omega < 68$	750	228	750	228
	$68 \leq \Omega < 69.5$	1500	457	500	152
	$\Omega \geq 69.5$	0	0	0	0

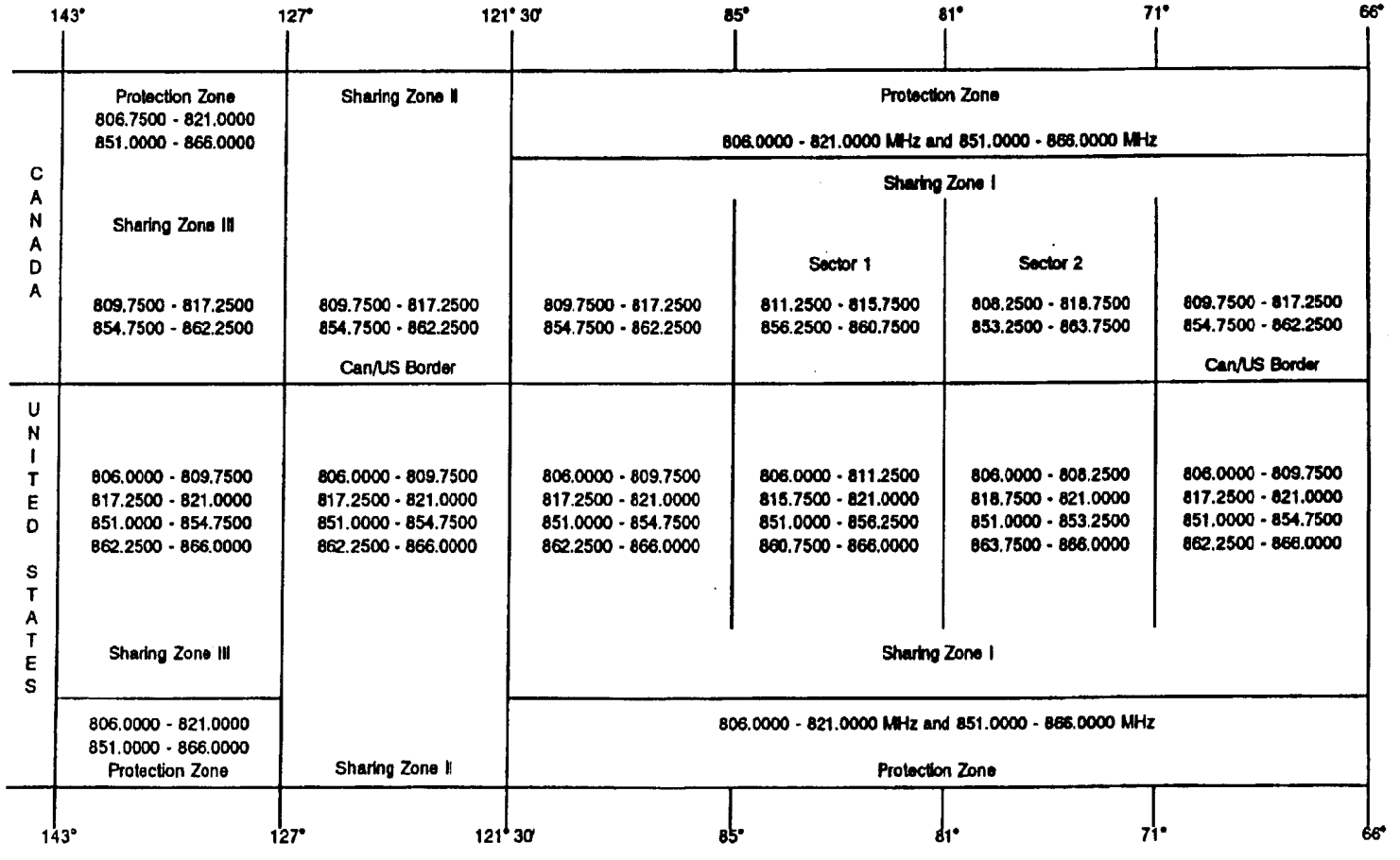
ANNEX B

The FCC will withold authorization of land mobile base stations in the frequency bands and in the geographical areas listed below:

Frequency Bands	Areas
852-856.25 MHz	Between 42°30'N. and 43°30'N. and within 10 km of the border, and west of 82°W.
852-853.25 MHz	Between 43° and 43°20'N. and within 10 km of the border, and east of 80°W.
864-866 MHz	Between 42°55'N. and 43°20'N. and within 15 km of the border, and east of 81°W.
851-852 MHz	Between 74°20'W. and 72°55'W. and within 10 km of the border
852-853.25 MHz	Between 75°20'W. and 74°55'W. and within 10 km of the border
864-866 MHz	Between 75°30'W. and 74°55'W. and within 10 km of the border
851-852 MHz	Between 72°10'W. and 71°25'W. and within 10 km of the border
852-854.75 MHz	Within 10 km of the border west of 121°55'W. longitude and north of 48°25'N. latitude, excluding the Alaska-British Columbia/Yukon Territory border.

Figure I

Canada-United States Sharing Arrangement: 806 - 821 MHz and 851 - 866 MHz Bands



Notes:
- All frequencies in megahertz
- Protection Zones and Sharing Zone I and III subject to Annex A, Table A1 requirements.
- Sharing Zone II subject to Annex A, Table A2 requirements

Figure A1

CANADA / UNITED STATES SHARING ARRANGEMENT

806-821 MHz AND 851-866 MHz BANDS

ASSUMED AVERAGE TERRAIN ELEVATIONS

MAP ILLUSTRATING ASSUMED AVERAGE TERRAIN ELEVATIONS DEFINED IN TABLE A3 FOR USE IN DETERMINING EFFECTIVE ANTENNA HEIGHT IN CONJUNCTION WITH POWER / HEIGHT EQUIVALENCE TABLES A1 AND A2.

I.E.
EFFECTIVE ANTENNA HEIGHT = ACTUAL ANTENNA HEIGHT (AMSL)
MINUS ASSUMED AVERAGE TERRAIN ELEVATION FOR ANTENNA SITE

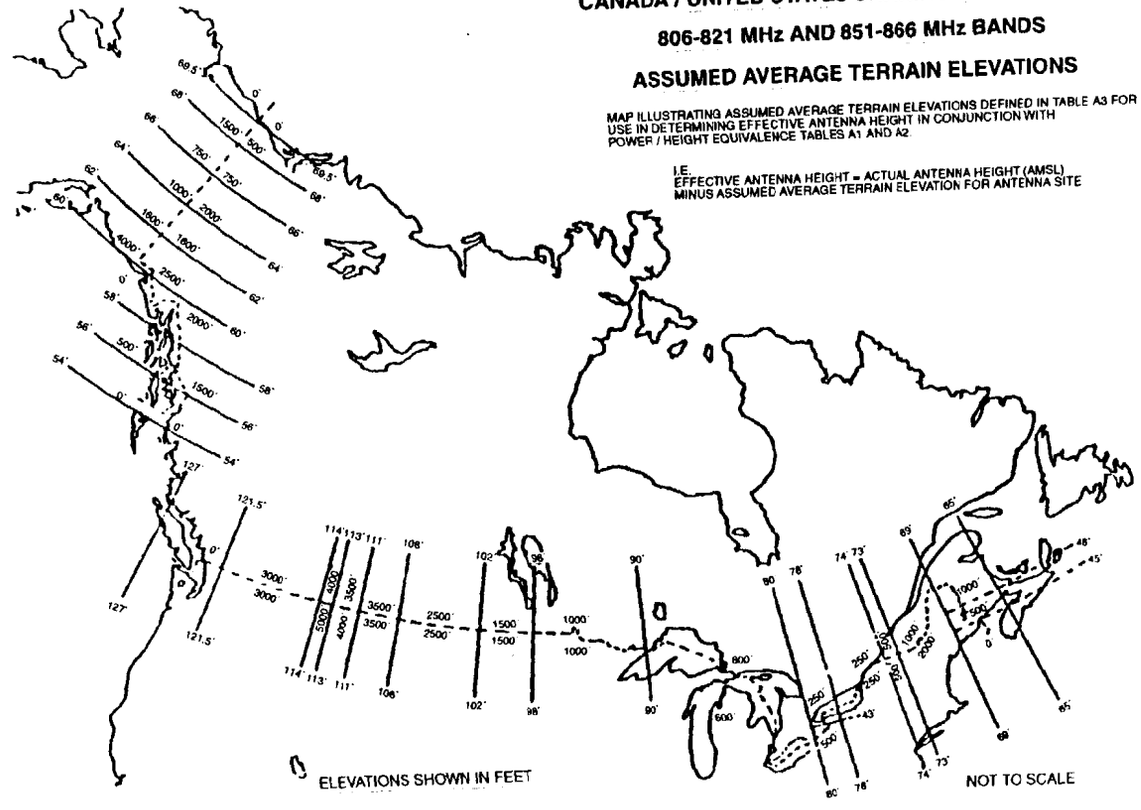


Figure 2

CANADA / UNITED STATES SHARING ARRANGEMENT

806-821 MHz AND 851-866 MHz BANDS

SHARING AND PROTECTION ZONES

NOT TO SCALE

* BAND OVERLAP AREA:
See Figure 3

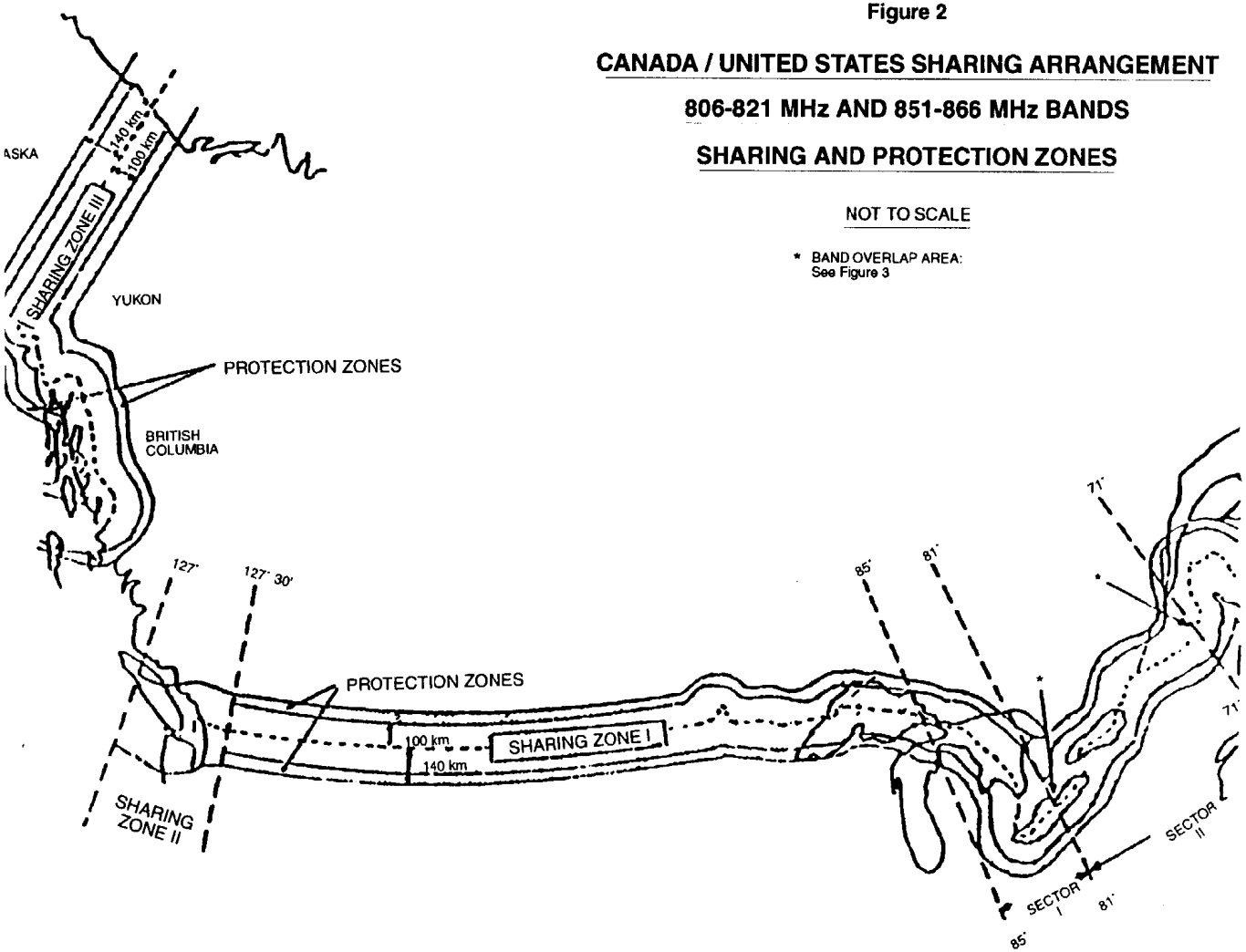
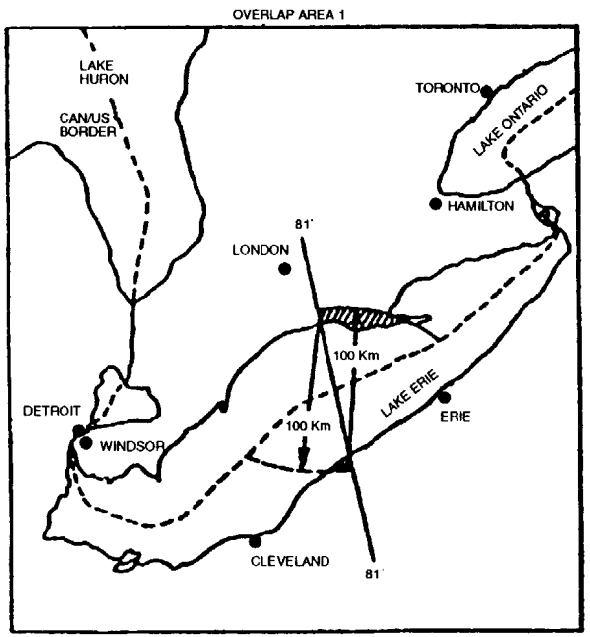


Figure 3

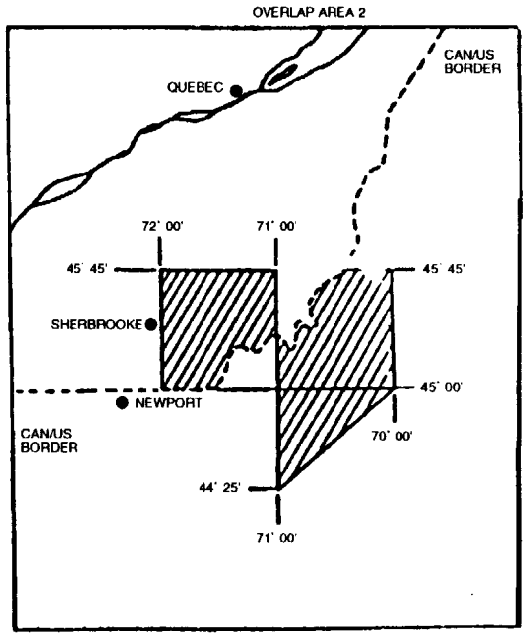
CANADA / UNITED STATES SHARING ARRANGEMENT

806-821 MHz AND 851-866 MHz BANDS

BAND OVERLAP COORDINATION



AREAS IN WHICH ASSIGNMENTS MUST BE CO-ORDINATED



Frequency Assignments To Be Coordinated (MHz)
(25 kHz Channel Spacing)

CANADA	UNITED STATES
808.2750 - 811.2250	808.2625 - 811.2375
815.7750 - 818.7250	815.7625 - 818.7375
853.2750 - 856.2250	853.2625 - 856.2375
860.7750 - 863.7250	860.7625 - 863.7375

OVERLAP BANDS

808.2500 - 811.2500
815.7500 - 818.7500
853.2500 - 856.2500
860.7500 - 863.7500

Frequency Assignments To Be Coordinated (MHz)
(25 kHz Channel Spacing)

CANADA	UNITED STATES
808.2750 - 809.7250	808.2625 - 809.7375
817.2750 - 818.7250	817.2625 - 818.7375
853.2750 - 854.7250	853.2625 - 854.7375
862.2750 - 863.7250	862.2625 - 863.7375

OVERLAP BANDS

808.2500 - 809.7500
817.2500 - 818.7500
853.2500 - 854.7500
862.2500 - 863.7500